

CLAIMS

5 I claim:

1. An apparatus for propelling balls for game practice comprising:
 - a base member contacting a fixed support member having an integral vertically extending member, the vertically extending member terminating in a first dual hinge;
 - a lifting arm, including an upper elongate member having a first end and a second end and a lower elongate member having a first end and a second end, the upper elongate member attached to the first dual hinge at a first end and the lower elongate member rotatably attached to the first dual hinge at a first end, the upper elongate member and the lower elongate member mounted substantially parallel to each other;
 - a compression resistant member having a first end and a second end, the first end attached to the base member and the second end attached to the lower member of the lifting arm;
 - a movable vertically extending member having a second dual hinge, the second dual hinge rotatably attached to the second end of the upper elongate member and rotatably attached to the second end of the lower elongate member, such that the upper elongate member, the lower elongate member, the first dual hinge and the second dual hinge form a deformable parallelogram that maintains the orientation of the vertically extending member relative to the base member;

an oscillating bracket rotatable about the vertical axis attached to the movable vertically extending member;

a ball propulsion device supported by and rotatable about a horizontal axis attached to the serving head support bracket; and

5 a ball delivery guide feeding balls to the ball propulsion device mounted on the serving head support bracket.

2. The apparatus for propelling balls of claim 1 wherein the base member includes a stand including two legs forming a horizontal "T"

3. The apparatus for propelling balls of claim 1 wherein the base member further includes a control box mounted proximate the vertically extending member

4. The apparatus for propelling balls of claim 1 wherein the control box is in electric communication with each motor driving each of the three propelling motors

5. The apparatus for propelling balls of claim 1 wherein the control box includes a control for left spin, right spin, and top and bottom spin.

20 6. The apparatus for propelling balls of claim 1 wherein the control box is in electric communication with the motor that controls the speed of revolution of the driven wheel

7. The apparatus for propelling balls of claim 1 wherein the control box further includes a control for the feed interval for the ball feed device

8. The apparatus for propelling balls of claim 1 wherein the base member includes a locking plate attached to the first hinge plate in friction engagement with the upper and lower elongate members

9. The apparatus for propelling balls of claim 1 wherein the propulsion head includes a head for throwing tennis balls

10. The apparatus for propelling balls of claim 1 wherein the head includes 3 wheels each independently driven by 3 motors

11. The apparatus for propelling balls of claim 1 wherein the revolution speed of the 3 wheels are independently controlled

12. The apparatus for propelling balls of claim 1 wherein the apparatus further includes at least one handle mounted on an elongate member having two legs forming a horizontal "T".

13. An apparatus for propelling balls for game practice comprising:
a main frame, including an attached control box, having a dual hinge;
a deformable parallelogram lifting arm, having a first end and a second end, attached at its first end to the dual hinge on the main frame;

a movable vertically extending member, rotatably receiving and supported by the second end of the lifting arm;

an oscillating bracket, having at least one upwardly extending arm, rotatable around a vertical axis;

5 a ball propulsion device mounted on the oscillating bracket to be horizontally rotatable; and

feed support attached to the oscillating bracket above the ball propulsion device providing a source of balls for the ball propulsion device.

14. The apparatus for propelling balls of claim 13 wherein the base member includes a stand including a "T" shaped supporting member.

15. The apparatus for propelling balls of claim 13 wherein the base member further includes a control box mounted proximate a vertically extending member of the base member.

16. The apparatus for propelling balls of claim 13 wherein the control box is in electric communication with each motor driving each of three ball propelling wheels of the ball propulsion device.

20 17. The apparatus for propelling balls of claim 13 wherein the control box includes a control for left spin, right spin, and top and bottom spin.

18. The apparatus for propelling balls of claim 13 wherein the control box is in electric communication with the motor that controls the speed of revolution of the ball isolating wheel.

5 19. The apparatus for propelling balls of claim 18 wherein the control box further includes a control for varying the feed interval between ball presented for play of the ball feed device.

90 20. The apparatus for propelling balls of claim 13 wherein the base member includes a locking plate attached proximate the first hinge plate, said locking plate in friction engagement with at least one of the upper elongate member and the lower elongate members.

21. The apparatus for propelling balls of claim 1 wherein the propulsion head includes a ball propulsion head for presenting tennis balls to a player practicing the game.

20 22. The apparatus for propelling balls of claim 13 wherein the ball propulsion head includes three ball driving wheels each independently driven a motor dedicated to that particular wheel.

23. The apparatus for propelling balls of claim 13 wherein the revolution speed of the 3 wheels are independently controlled.

24. Wherein further includes at least one handles mounted on an elongate member.

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25. A ball propulsion mechanism comprising:
a ball reservoir;
a ball selection device;
a tube connected to the ball selection device;
a ball impeller including three wheels;
an independently controlled motor attached to the axle of each wheel;
a wheel support frame attached to each of the three motors;
an outer bracket attached to the wheel support frame to allow rotation of the wheel support frame about a horizontal axis within the outer bracket.

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26. The ball propulsion mechanism of claim 25 wherein the three wheels have substantially flat ball contacting surfaces.
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27. The ball propulsion mechanism of claim 25 wherein the ball selection device includes a ball isolating wheel defining an aperture slightly larger than the diameter of the ball to be delivered rotatably mounted, and positioned to receive balls from the reservoir.